

**SUPPLEMENTAL COMMENTS OF THE CROSS-CUTTING ISSUES GROUP**  
**ON THE**  
**REVISIONS TO THE U.S. ENVIRONMENTAL PROTECTION AGENCY’S**  
**HAZARDOUS AND SOLID WASTE MANAGEMENT SYSTEM: DISPOSAL OF COAL**  
**COMBUSTION RESIDUALS FROM ELECTRIC UTILITIES**  
**RELATED TO UNLINED SURFACE IMPOUNDMENTS**

**EPA-HQ-OLEM-2017-0286**  
**RIN 2050-AG88; RIN 2050-AH01; RIN 2050-AG98**

**INTRODUCTION**

The U.S. Environmental Protection Agency (“EPA” or “Agency”) is in the process of considering various amendments to its prior final rule establishing national minimum criteria applicable to coal combustion residuals (“CCR,” or “coal ash”) units.<sup>1</sup> Among other revisions, EPA is working on rulemakings to address the recent decision by the U.S. Court of Appeals for the District of Columbia Circuit, which held that 40 C.F.R. § 257.101(a) (relating to the closure of unlined surface impoundments) was arbitrary and capricious based on the record before EPA.<sup>2</sup>

The Cross-Cutting Issues Group (“CCIG” or “Group”) is a group of electric generating companies with a diverse portfolio of generating assets located throughout the country.<sup>3</sup> CCIG members own and/or operate units subject to regulation under the U.S. Environmental Protection Agency’s (“EPA” or “Agency”) final rule pertaining to CCR. As a result, CCIG members and their electric customers have a direct and specific interest in EPA’s regulation of unlined surface impoundments.<sup>4</sup>

CCIG encourages EPA to consider the recent operating and retrofit experiences of Group members as EPA decides how to respond to the Vacatur Order. Most importantly, Group member

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<sup>1</sup> 80 Fed. Reg. 21,302 (Apr. 17, 2015) (“CCR Rule”).

<sup>2</sup> See *Utility Solid Waste Activities Group v. EPA*, Case No. 15-1219, Per Curiam Judgment (D.C. Cir. Aug. 21, 2018) (“Vacatur Order”); see also *Utilities Solid Waste Activities Group*, 901 F.3d 414 (D.C. Cir. 2018) (“USWAG Opinion”).

<sup>3</sup> The CCIG members who support these comments are Basin Electric Power Cooperative; Duke Energy; Entergy Services, LLC.; Florida Power and Light; Louisville Gas & Electric/Kentucky Utilities; NextEra Energy, Inc.; OGE Energy Corp.; Public Service Company of New Mexico; Talen Energy; Salt River Project; and Vectren.

<sup>4</sup> The Cross-Cutting Issues Group previously submitted comments on the prior proposed rule containing amendments to the federal regulations pertaining to coal combustion residuals. 83 Fed. Reg. 11,584 (March 15, 2018) (“Phase One Proposed Rule”). The Group’s comments were docketed at EPA-HQ-OLEM-2017-0286-1711 (May 3, 2018) and EPA-HQ-OLEM-2017-0286-2139 (May 4, 2018) (“May 2018 CCIG Comments”). Today’s comments supplement the Group’s prior May 2018 comments.

activities demonstrate that the timeframe to engineer, permit, construct, and implement permanent alternative waste disposal capacity is at least two to three years for most impoundments. Many companies' closure plans sequence these events working back from a closure deadline of no earlier than October 31, 2020. To ensure that companies have sufficient time to implement alternative disposal systems without having to cease power production, EPA should not mandate closure of unlined surface impoundments prior to October 31, 2020. Additionally, some unlined units have been or will be able to demonstrate that they are extremely unlikely to leak and that their continued operation will not adversely affect human health or the environment; these impoundments should be allowed to continue to operate.

CCIG looks forward to engaging with EPA in the development of supplemental rulemaking to address the D.C. Circuit's Vacatur Order.<sup>5</sup>

## BACKGROUND

As originally published, Section 257.101 of the CCR Rule mandated closure of CCR surface impoundments upon the occurrence of specified triggering events.<sup>6</sup> Section 257.101(a) exclusively related to "existing unlined surface impoundments" and provided that such impoundments must cease receipt of all wastestreams and initiate closure within six months of determining that one or more Appendix IV constituents have been detected in statistically significant levels above the groundwater protection standard.<sup>7</sup>

The CCR Rule does not contain a set deadline for making such a determination. Subsequent EPA correspondence, however,<sup>8</sup> suggested that companies following the groundwater monitoring schedule laid out in the CCR Rule could be making their first determination of statistically significant increases of Appendix IV constituents on January 14, 2019.<sup>9</sup> Unlined surface impoundments that detected statistically significant levels of Appendix IV constituents then would have had to cease receipt of waste and initiate closure within six months.

EPA subsequently extended this deadline to initiate closure to October 31, 2020.<sup>10</sup> This deadline extension was in response to three sets of concerns. First, EPA in 2018 began undertaking a substantive review of the CCR Rule in light of the Water Infrastructure Improvements for the Nation ("WIIN") Act, which altered the CCR Rule's self-implementing structure by both

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<sup>5</sup> The D.C. Circuit's Vacatur Order also vacated 40 C.F.R. § 257.50(e), which related to an exemption from the CCR Rule for inactive impoundments at inactive generating facilities. These supplemental comments do not address that portion of the Vacatur Order, but CCIG may provide additional information related to inactive impoundments at inactive facilities in the future.

<sup>6</sup> 40 C.F.R. § 257.101.

<sup>7</sup> 40 C.F.R. § 257.101(a)(1) (emphasis added).

<sup>8</sup> Letter from EPA re Coal Combustion Residuals Rule Groundwater Monitoring Requirements (April 30, 2018).

<sup>9</sup> As noted in EPA's letter, this date assumed that facilities took advantage of a 90-day period to make an alternate source demonstration under 40 C.F.R. § 257.94(e)(2).

<sup>10</sup> 83 Fed. Reg. 36,435 (July 30, 2018) ("Phase One Part One Rule").

authorizing EPA to directly enforce the CCR Rule and also authorizing states to develop permitting programs that could operate in lieu of the federal CCR Rule. Reconsideration of the CCR Rule was therefore appropriate because EPA now had the opportunity to develop risk-based and site-specific criteria for the handling of CCR and any related cleanup, rather than the one-size-fits-all approach taken in the original CCR Rule. But, for the revised standards to have meaningful impact, commenters noted that it was important to extend some of the closure-related deadlines or some impoundments that otherwise may not have had to close under new risk-based standards would be compelled to begin closure before the new CCR Rule provisions took effect.<sup>11</sup>

Second, some members of the regulated community indicated that developing alternative capacity and closing unlined surface impoundments under the original CCR Rule schedule was “not technically feasible” in any event by the original CCR Rule deadlines.<sup>12</sup>

Third, EPA recently extended to November 1, 2020, some of the earliest deadlines for compliance with the 2015 effluent limitation guidelines (“ELGs”). As EPA has specifically recognized that ELGs and the CCR Rule impact the same facilities and coordination of planning under the two regimes is necessary,<sup>13</sup> commenters noted that aligning the ELG deadlines with the CCR Rule deadlines would allow for efficient and comprehensive planning.

In light of these concerns, EPA

[C]onsidered whether an extension of the deadline in § 257.101(a)(1) to initiate the closure of unlined surface impoundments . . . would address commenters’ concerns. Such a provision would require facilities to follow the assessment monitoring procedures and determine whether any contaminants have been detected at statistically significant levels above the [groundwater protection standards]. A facility that makes such a determination would still be required to initiate corrective action to clean up the contamination in the aquifer, but could continue to use the unit for an extended period, which would provide the facility with more time to adjust their operations. This approach would allow facilities to better coordinate their engineering, financial and permitting activities under the two rules, and would align with EPA’s recent and on-going ELG rulemakings. Therefore, EPA has extended the closure for cause trigger . . . The agency selected the date October 31, 2020, to coordinate with the revised earliest compliance date for the ELG requirements.<sup>14</sup>

Thus, upon detection of a statistically significant increase of Appendix IV constituents, under the CCR Rule following the Phase One Part One Rule, “within six months of making such determination or no later than October 31, 2020, whichever date is later, the owner or operator of

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<sup>11</sup> See Phase One Part One Rule Preamble, 83 Fed. Reg. at 36,442.

<sup>12</sup> *Id.*

<sup>13</sup> See CCR Rule Preamble, 80 Fed. Reg. at 21,411

<sup>14</sup> Phase One Part One Rule Preamble, 83 Fed. Reg. at 36,442 to 36,443.

an existing unlined CCR surface impoundment must cease placing CCR and non-CCR wastestreams” into the impoundment and initiate closure or retrofit the unit.<sup>15</sup>

The U.S. Court of Appeals for the District of Columbia Circuit subsequently held that the original Section 257.101(a) was not sufficiently protective and issued its Vacatur Order. This vacatur was based on the D.C. Circuit’s concern that the original CCR Rule’s specific “approach of relying on leak detection followed by closure is arbitrary and contrary to RCRA.”<sup>16</sup> The D.C. Circuit did not vacate Section 257.102 (supplying the timeframes for impoundments to achieve closure) or Section 257.103 (supplying an alternative closure framework for units where no alternative disposal capacity is available or the coal-fired boiler(s) will permanently cease operation). Nor did the court vacate Section 257.101(b), which requires closure of lined and unlined surface impoundments that fail to meet certain location restrictions. The closure deadline for impoundments that fail to meet the aquifer separation location restriction was also extended to October 31, 2020 as part of the Phase One Part One Rule.<sup>17</sup>

### SUMMARY OF SUPPLEMENTAL COMMENTS

EPA has stated that the Agency intends to revise the CCR Rule in light of the opinion from the U.S. Court of Appeals for the District of Columbia Circuit. CCIG recognizes this may include closure requirements for all unlined surface impoundments. CCIG urges EPA to consider the following factors as it decides how to proceed:

1. **Development of permanent alternative disposal capacity takes at least two to three years**, and EPA should not mandate a closure deadline with which it would be physically impossible for owners and operators to comply. Many unlined units that would have had until October 31, 2020 or later (under Section 257.101(a) or (b) (as amended)) to initiate closure cannot now comply with an earlier closure deadline. The timeframe to develop permanent alternative closure capacity, obtain the requisite permits, and construct new ash handling systems and CCR and non-CCR waste capacity is generally at least two to three years. Specific examples of the timeframes to develop and implement alternative capacity are identified in Section I, *infra*.
2. **EPA should not mandate closure of all unlined units (and now clay-lined units)** without any opportunity to differentiate based on key characteristics. EPA should

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<sup>15</sup> 40 C.F.R. § 257.101(a)(1).

<sup>16</sup> *USWAG Opinion*, 901 F.3d at 429. The D.C. Circuit also vacated 40 C.F.R. § 257.71(a)(1)(i), which had treated “clay-lined” units as lined for purposes of the CCR Rule.

<sup>17</sup> Both October 31, 2020 closure deadline extensions in the Phase One Part One Rule are currently being challenged in the D.C. Circuit. *See Waterkeeper Alliance, Inc. v. EPA*, No. 18-1289 (D.C. Cir.). On December 17, the environmental petitioners in that challenge filed a motion requesting the court stay or vacate the deadline extensions, and EPA filed a cross-motion requesting voluntary remand without vacatur of the deadline extensions. Briefing on both motions is scheduled to be completed on February 8, 2019. In the meantime, the October 2020 deadline extensions remain in effect.

allow facilities to demonstrate, based on specific criteria, that units that demonstrate certain characteristics do not pose probable risk to human health or the environment, and therefore could be subject to different closure requirements.

- (a) Potential examples of this approach could include (1) adding a new liner equivalency demonstration under 40 C.F.R. § 257.71 that allows owners and operators to demonstrate that their site-specific conditions in effect create a natural “liner” protective of human health and the environment, and or (2) drafting a new Section 101(a) that exempts from closure requirements units for which “the owner or operator of the CCR unit makes a demonstration verified by a qualified professional engineer that” certain protective criteria are met.
  - (b) Using either approach, EPA could require a technical demonstration by the applicant, as determined by a state director or qualified professional engineer, that naturally occurring low permeability clays underlying the CCR unit meet or exceed the performance criteria of the liner criteria for CCR surface impoundments set forth in 40 C.F.R. § 257.71 and that such naturally occurring low permeability clays shall be classified as a “liner” system for purposes of the CCR Rule (or are otherwise sufficient to show that the unit does not pose risk to human health or the environment), and should not be required to close.
  - (c) Such a technical demonstration could include some or all of the following factors: (1) the measured hydraulic conductivity of the formation in which the unit is located; (2) the estimated travel time from the CCR unit to the uppermost aquifer; (3) comparisons of mineral and total dissolved solids (“TDS”) concentrations in the uppermost aquifer to mineral and TDS concentrations in upgradient and downgradient wells of the CCR unit to demonstrate no evidence of migration of CCR constituents to the uppermost aquifer; and (4) analysis of stable isotope characteristics of groundwater in downgradient wells of the CCR unit and CCR surface water from the CCR unit to demonstrate no evidence of migration of CCR constituents to the uppermost aquifer.
  - (d) The “qualified professional engineer” certification would not be a permanent process, but one that over time would get supplemented and/or replaced by state certifications in the context of state permitting programs.
  - (e) Support for this proposal is discussed further in Section II, *infra*.
3. **EPA need not address provisions that were not vacated by the D.C. Circuit,** which includes Sections 257.101(b), 257.102, and 257.103, because those provisions will remain compatible with revisions to Section 257.101(a). Notably, Section 257.103 provides an important “relief valve” for addressing the impacts of accelerated closure and ensuring electric reliability.

## SUPPLEMENTAL COMMENTS

### **I. EPA Should Not Require Closure of Unlined Surface Impoundments Prior to October 31, 2020**

#### **A. Power companies face limits on their ability to initiate capital expenditures in the absence of clear, final regulations requiring them to do so**

As EPA considers how to change this regulatory regime following the D.C. Circuit decision in *USWAG*, it is important to consider that companies – especially regulated utilities subject to state laws for rate recovery, but also publicly traded companies that answer to investors – face potential limits on their ability to invest resources into capital projects based on every regulatory contingency or potentiality. Instead, they respond to final regulations and plan, and invest, accordingly. For instance, Florida state law permits a utility to seek cost recovery for “environmental compliance costs,” and defines such costs as “all costs or expenses incurred by an electric utility in complying with environmental laws or regulations, including but not limited to in-service capital investments, including the electric utility’s last authorized rate of return on equity thereon, and operation and maintenance expenses[.]”<sup>18</sup> Such costs must be prudent and derive from changes in laws, regulations, or permit conditions.<sup>19</sup>

Under the CCR Rule and prior to the *USWAG* decision, unlined surface impoundments that met all five location restrictions and did not leak were not compelled to close. Thus, owners and operators of such impoundments could not undertake any capital investments in developing alternative capacity unless and until an applicable leak was verified.

#### **B. Power companies face significant obstacles to switching from a surface impoundment to alternative disposal capacity**

Group member experiences demonstrate that at least two to three years (and potentially more time) is generally required to develop, permit, construct, and implement new alternative disposal capacity to replace surface impoundments. This timeframe is the result of numerous engineering steps and regulatory requirements, including the need to identify alternative capacity for non-CCR as well as CCR wastestreams, site-specific design challenges, permitting hurdles, and other issues discussed below. Facility-specific case studies (discussed in Section I.C, *infra*) further demonstrate that in practice, companies generally cannot implement a new permanent disposal system in less than two to three years.

**First**, surface impoundments handle a wide variety of wastestreams, including CCR wastestreams and also other wastestreams outside the scope of the CCR Rule. Because closure of an impoundment requires diversion of both CCR and non-CCR wastestreams, companies must find alternative capacity for CCR and non-CCR wastestreams. The cumulative flow of these various wastestreams can reach thousands of gallons a minute, or millions of gallons per day. Below is a list of some of the types of wastestreams handled by surface impoundments:

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<sup>18</sup> Fla. Stat. 366.8255(1)(d) (emphasis added).

<sup>19</sup> Fla. Stat. 366.8255(2).

- Bottom ash sluice water
- Fly ash silo high-pressure service/wash water
- FGD system outflows, such as flows from constructed wetlands treatment systems, bioreactors, blowdown tanks
- Pyrite sluice water
- Stormwater and stormwater runoff
  - Stormwater directly into impoundments
  - Gypsum pile runoff
  - Coal pile runoff
  - Limestone pile runoff
  - Landfill runoff
- Landfill leachate
  - FGD landfill leachate
  - Industrial landfill leachate
- Inter-basin flows (flows from one ash impoundment into another impoundment)
- Cooling tower blowdown
- Sanitary system
- Low volume wastestreams, such as plant floor drains
- Water treatment regeneration
- Boiler water
- Yard sumps
- Demineralizer regenerations
- Reverse Osmosis system flush water
- Fire Protection system drain water,
- Non-CCR wastewater sumps (i.e., water treatment, boiler area and precipitator wash-down, absorber building)
- Cooling tower and canals pumped out for maintenance outages
- Automotive and heavy equipment drains

Any new disposal system or alternative routing will need to account for the specific quantities and characteristics of the various wastestreams to determine the appropriate treatment. Due to significant variance in the types, quantities, and flow paths of the non-CCR wastestreams handled at different facilities and the fact that all flows will ultimately need to be rerouted from the current disposal system, extensive engineering, design, permitting and construction is typically required.

**Second**, major shifts in ash handling and storage operations create substantial technical and construction complexities. Developing a project, soliciting bids, selecting a contractor, and deciding on a design for the alternative disposal system can take six months to a year or more, depending in part on the complexity of the project, the availability of contractors, and weather impacts. The design process is further complicated by the fact that in many instances companies need to develop their long-term alternative disposal system to comply not just with the CCR Rule but also with the new ELGs, and companies are waiting on EPA to issue a new proposed rule regarding how bottom ash transport water and flue gas desulfurization wastewater streams should

be handled.<sup>20</sup> It is important to recognize that to the extent possible, power producers engineer disposal capacity and wastewater treatment systems to meet multiple regulatory requirements in order to reduce costs, which in turn mitigates impacts to customers' electric bills.

*Third*, developing, constructing, and implementing a new disposal system can require a slew of permits and permit modifications. For instance, the total time to secure all permits related to alternative disposal capacity at Louisville Gas and Electric/Kentucky Utilities' Trimble County Generating Station was over 30 months. In instances where a radical design change becomes necessary late in the process, the permitting period can double.

Below is a list of the types of permits and permit modifications frequently required to switch to an alternative disposal system, and the time it takes to obtain them. Note that the timeframes identified below are the typical times between submitting a completed application and the permit being granted by the appropriate authority. These times vary greatly between states, and also do not reflect the time it takes to design the alternative system and then complete the permit applications accordingly. In many instances a public comment period and/or a public hearing may be required, and may add months to the permit process.

- Solid waste management permits
  - Modifications (for instance, to reflect a change in closure grades due to premature closing of a surface impoundment or expansion of/additional cells for a landfill) – several months to a year to obtain
  - Permitting new disposal capacity (e.g., a landfill to handle ash previously disposed of in an impoundment) – up to several years
- State-issued Individual Pollutant Discharge Elimination System permits
  - Modifications to reflect a change in how wastestreams are managed – several months to a year
- Clean Water Act Section 404/401 permits for potential impacts to wetlands or streams – up to 2 to 3 years<sup>21</sup>
- Surface drainage permits
  - For instance, permit to address change in flows since flows can no longer be rerouted to a specific pond – several months

Other permits/authorizations that may be required include:

- Erosion and sediment control permits
- Dam safety permits
- Rivers and Harbors Act Section 10 permits/authorization

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<sup>20</sup> EPA currently projects releasing a new proposed ELG rule for these wastewater streams in March 2019, but also projects that the rule will not be finalized until December 2019. <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201810&RIN=2040-AF77>.

<sup>21</sup> See, e.g., *Rapamos v. United States*, 547 U.S. 715, 721 (2006) (“The average applicant for an individual permit spends 788 days and \$271,596 in completing the process, and the average applicant for a nationwide permit spends 313 days and \$28,915[.]”).

- Section 408 permits
- Floodplain/coastal use permits
- Federal Energy Regulatory Commission (“FERC”) authorization
- Shoreline stabilization permitting
- Railroad crossing/Department of Transportation permitting
- Clean Air Act Title V permit modifications
- Riparian buffer impact permitting/authorization
- Local construction permitting
- State wastewater treatment construction permitting

*Fourth*, identifying and/or obtaining a location for a new landfill or water retention basin can delay the development of an alternative disposal system. For instance, water retention basins typically require 25-30 acres. In some instances, the basins (and dry bottom ash systems and wastewater treatment systems) will need to be located in a way that avoids any current or former CCR areas. Identifying land for a new unit may require either (1) re-locating existing facilities at a site, and/or (2) acquiring new land, a process that can take several years including public participation and potential challenges.<sup>22</sup> Additionally, in identifying a new site, various investigations (environmental baseline monitoring, geotechnical studies, and groundwater monitoring) may also be required.

*Fifth*, the actual construction of the alternative system can take years, depending again on the scope and complexity of the project, the availability of contractors, and other factors.

*Sixth*, critically, a number of companies would have had no notice that they needed to plan to close their impoundments prior to the *USWAG* decision. For instance, impoundments that met both the clay liner criteria under Section 257.71(a)(1)(i) and the five location restrictions had no closure obligations. Similarly, impoundments that met the location restrictions and had no documented exceedances of groundwater protection standards likewise had no closure requirements. Companies with these types of impoundments would have no need to plan for any alternative capacity at any point prior to the *USWAG* decision and therefore need a reasonable amount of time to identify their alternative capacity options.

For these practical reasons, we recommend that EPA set a deadline to initiate closure of unlined impoundments no sooner than October 31, 2020 to allow facilities enough time to design, permit and construct facilities that will replace surface impoundments for managing the CCR and non-CCR wastestreams generated as a byproduct of producing reliable electricity for customers.

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<sup>22</sup> Although in some instances off-site disposal of dry CCR may be considered, it frequently presents its own challenges and potential impacts. Off-site disposal requires transportation of large quantities of CCR, and scheduling rail transport may be difficult due to competing uses of the rail lines.

**C. Case studies demonstrate significant time is needed to develop and implement permanent alternative capacity**

**1. Duke Energy – Numerous Facilities**

Over the past three years, Duke Energy has undertaken extensive projects at active coal-fired generating sites<sup>23</sup> to enable cessation of CCR and non-CCR wastestreams into existing surface impoundments. These projects were initiated earlier than would have been required under the CCR Rule in order to meet state requirements for the closure of impoundments. Overall, it took Duke Energy 2.5 to 3.5 years to undertake these projects and perform the required engineering, permitting, installation of systems, piping modifications, and complete tie-ins necessary to cease flows to CCR surface impoundments. Below is a table summarizing the average time for the completion of projects at nine of Duke Energy's plants once construction started, which on average was two years from the date shovels hit the ground (but note again that these dates do not account for the time needed for engineering, design, siting, and permitting). This includes all projects necessary to cease flows into impoundments and initiate closure.

Active Coal-Fired Generating Plant	State	Construction Start	All Projects In Service*	Duration for Completion of All Projects (years)
Allen	North Carolina	7/18/2017	Q1 2019	1.7
Belews	North Carolina	7/6/2016	Dec. 2018	2.5
Cayuga	Indiana	6/6/2016	Mar. 2018	1.8
Cliffside	North Carolina	4/28/2016	Q1 2019	3.0
East Bend	Kentucky	8/17/2017	Dec. 2018	1.4
Gibson	Indiana	12/3/2015	Mar. 2018	2.3
Marshall	North Carolina	5/1/2017	Q2 2019	2.0
Mayo	North Carolina	10/9/2017	Q2 2019	1.5
Roxboro	North Carolina	3/13/2017	Q2 2019	2.0
Average (all sites)				2.0

\* Specific dates are given for completed projects; all projects currently in progress are projected to be completed in the first or second quarter of 2019 (based on February 2019 projections)

The projects at each facility varied in size and complexity depending on the number of coal-fired generating units, site characteristics, and water flows. The following are categories of

<sup>23</sup> In North Carolina: Allen, Belews Creek, Cliffside/Rogers Energy Complex, Marshall, Mayo, and Roxboro. In Indiana: Cayuga and Gibson. In Kentucky: East Bend.

projects that had to be undertaken at these facilities (the projects undertaken at each specific facility varied depending on existing CCR management, disposal capacity, and operating characteristics):

- **Dry bottom ash systems**

- Duke Energy has installed submerged flight conveyors for dry bottom ash (“DBA”) management. These systems were configured based on the number of operating generating units:
  - Duke Energy’s largest facility, Gibson Station in Indiana, required four submerged flight conveyors for the five coal-fired generating units.
  - Belews Creek and Cayuga, with two coal-fired units apiece, required two submerged flight conveyors.
- At most sites, the DBA systems are installed outside of the powerhouse. These systems require new footings and pad, electrical system, and surge tanks.
- At Cliffside and East Bend, the conveyors were installed under the boiler, which required a 12-week unit outage to install.
- Where DBA systems were installed outside of the powerhouse, the unit outages could be staggered for final tie-ins.

- **Dry fly ash reliability** - although most Duke Energy generating units already had dry fly ash handling, most stations used wet sluicing as a backup when the dry fly ash system was down. Thus, Duke Energy needed to undertake projects to remove the wet sluicing backup and enhance dry fly ash system reliability. These projects entailed additional fly ash silos; redundant pneumatic lines/piping; new filter separators; and additional power supplies.

- **New stormwater/process water retention and treatment facilities**

- Concrete-lined water retention basins were constructed to manage a plant’s numerous process water flows and station stormwater.
- The systems are typically constructed as a series of retention basins: holding basin, primary basin, settling basin.
- The retention basins are interconnected with flow tied into the NPDES-permitted outfall.

- **Stormwater/process water reroutes** - at some sites, Duke Energy had to do extensive piping modifications to cease flows into the impoundments and divert flow into the plant’s new water retention basin. For example, at Gibson Station, Duke Energy had to build a 3,150-foot concrete-lined trench to carry site stormwater to the new retention basin.

- **Wastewater treatment systems**

- At several sites, Duke Energy installed physical-chemical treatment plus biological systems. Additional treatment may also be required for some plant process water flows.
- Permit needs are site-specific and depend on the characteristics of the flows entering the impoundment and NPDES permit limits.

2. Salt River Project Agricultural Improvement and Power District –  
Coronado Generating Station, Arizona

The Salt River Project Agricultural Improvement and Power District (“SRP”) owns an unlined surface impoundment at the Coronado Generating Station in St. Johns, Arizona. As discussed further in Section II, *infra*, this impoundment is an evaporation pond located directly on top of the Chinle Formation, which includes a thick sequence of naturally low permeability clay, and there have been no exceedances of any groundwater protection standard. Accordingly, this is precisely the type of unlined impoundment that does not present a risk to human health or the environment, and should be allowed to continue to operate.

Nevertheless, SRP has projected how much time and expense it would take to replace the evaporation pond with alternative disposal capacity. SRP anticipates it would take at least two and half years, but more likely, three and half years, to replace the evaporation pond. Assuming a start date of December 2018, this means the process would be completed no earlier than June 2021 under the best-case schedule, with a more reasonable completion date of April 2022.<sup>24</sup>

Projected work would involve the following phases:

- Preparing permit applications and then going through the permitting process, including:
  - Individual application for an Arizona Department of Environmental Quality (“ADEQ”) Aquifer Protection Permit (“APP”)
  - Application for an Arizona Department of Water Resources (“ADWR”) dam safety permit (if necessary)
  - Biological and cultural studies at the proposed project’s location and associated mitigation plans (if necessary)
- Completing the final engineering design for one or more new impoundments to evaporate the same quantity of waste water as the existing Pond
- Ordering engineered liner material
- Conducting competitive bidding to secure a construction contractor, non-liner material vendors, and construction equipment

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<sup>24</sup> This type of schedule underscores the importance of the existing Section 257.103 alternative closure provision, which is crucial to ensuring that facilities that do ultimately face mandatory closure of their impoundments will not be forced to shut down as a result of having to cease use of coal ash units. Phase One Part One Rule Preamble, 83 Fed. Reg. at 11,594-95; CCR Rule Preamble, 80 Fed. Reg. at 21,423. Even a mandatory shut down date of October 31, 2020, would not be feasible for some facilities, especially for units that would not have had to close but for the D.C. Circuit’s August 2018 vacatur order.

- Constructing the permitted impoundment
- Testing the bottom liner system
- Commissioning the new impoundment

The permitting process alone can take a year and a half to two years or more. Preparing the applications typically takes 6 to 9 months, and under Arizona regulations, ADEQ has the following specified timeframes to review site-specific construction projects without a penalty: (1) 266 business days (nearly 13 months), or (2) 329 business days (nearly 16 months) if a complex individual permit is required.<sup>25</sup> This licensing time period can be suspended, however, if ADEQ asks the applicant to correct administrative deficiencies or requests further information. After the administrative and substantive reviews are completed, ADEQ conducts an internal and external review of the draft permit, and then opens the permit up to a 30-day public comment period. Only after the public participation process is completed does ADEQ determine whether to issue the permit.

While the permitting process is proceeding, SRP would need to order geomembrane liner material for both the new evaporation ponds and for closure of the existing evaporation pond. SRP anticipates long lead times and that the liner material would have to be ordered “at risk” for SRP to meet the best-case timeline. ADEQ will not make any assurances that the engineering design is satisfactory until the final APP permit is granted and permitting fees are paid.

Once the new unit is permitted, SRP projects construction will take 12 to 18 months – which is consistent with Duke Energy’s experience, described above, that these construction projects can take from 1.4 to 3 years. Climate conditions in northeastern Arizona are variable with high potential for significant weather events that can adversely affect construction schedules. Summer conditions include monsoon storms and high winds – wind gusts up to 80 miles per hour have been recorded in the area of the Coronado Generating Station. Winter conditions include high winds and snow, and construction during winter months is further constricted by reduced daylight hours.

The estimated cost for this effort is \$20.5 million to close the existing evaporation pond, and an additional \$36.5 million to construct a new pond and meet state permitting requirements.

## **II. EPA Should Exempt from Closure Requirements Unlined and Clay-Lined Ponds That Exhibit Specific Protective Characteristics**

SRP’s Coronado Generating Station evaporation pond presents a compelling example of a pond that would not be considered lined under the liner criteria specified in 40 C.F.R. § 257.71, but nevertheless should not be required to close because it presents no risk of adverse impact to human health and the environment based on identifiable site-specific conditions. First, the pond is located in the Chinle Formation; the geometric mean of the hydraulic conductivity of all samples taken in the formation is  $3.2 \times 10^{-7}$  (i.e., it is extremely low). Second, the Formation is approximately 250 feet thick, meaning that the formation acts as a natural barrier between the

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<sup>25</sup> A.A.C. R18-1-525.

evaporation pond and the groundwater. Siting of the pond in the Chinle Formation was intentional specifically to protect area groundwater.

As a result of these factors, technical studies show it would take substantially longer than 2,200 years for water to infiltrate from the evaporation pond to the uppermost aquifer.<sup>26</sup>

In addition, the pond has a permit under the State of Arizona's Aquifer Protection Program that pre-dates the CCR Rule. Arizona's Aquifer Protection Program requires rigorous evaluation of the technical specifications for facilities that may discharge to the state's groundwater, including a demonstration that the facility has employed Best Available Demonstrated Control Technology ("BADCT").<sup>27</sup>

Accordingly, if EPA proceeds with a rulemaking that orders closure of most surface impoundments if they do not meet the Section 257.71 liner criteria, it should exempt from mandatory closure units like SRP's that do not pose risks to the environment. This exemption could be done in the form of a qualified professional engineer's certification that certain criteria (depth to groundwater and/or hydraulic conductivity) or an alternative liner equivalency demonstration, as provided in further detail in the Summary of Supplemental Comments, *supra*.

### **III. The Alternative Closure Provision Remains Critical to Ensuring the Reliability of the Energy Supply**

In EPA's 2015 CCR Rule, the Agency determined that an alternative closure provision was warranted to ensure the reliability of the power supply and "prevent significant risks to human health that would arise if a community would be left without power for an extended period of time" due to a facility having to shut down in order to comply with the CCR Rule's closure requirements.<sup>28</sup>

These considerations also apply to any surface impoundment required to close, regardless of whether it is an unlined surface impoundment or a lined surface impoundment closing because

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<sup>26</sup> See Haley & Aldrich Technical Memorandum dated November 28, 2018 (provided to EPA by SRP on November 30, 2018).

<sup>27</sup> See Arizona Revised Statute (A.R.S) 49-243.B.1. This statute requires all facilities permitted by the state to utilize BADCT in their design, construction and operation while considering various factors, depending on whether the facility is new or existing. The requirements of BADCT are met, in part, if it is demonstrated: "That the facility will be so designed, constructed and operated as to ensure the greatest degree of discharge reduction achievable through application of the best available demonstrated control technology, processes, operating methods or other alternatives, including, where practicable, a technology permitting no discharge of pollutants. In determining best available demonstrated control technology, processes, operating methods or other alternatives the director shall take into account site specific hydrologic and geologic characteristics and other environmental factors, the opportunity for water conservation or augmentation and economic impacts of the use of alternative technologies, processes or operating methods on an industry-wide basis."

<sup>28</sup> CCR Rule Preamble, 80 Fed. Reg. at 21,423 (referring to 40 C.F.R. § 257.103).

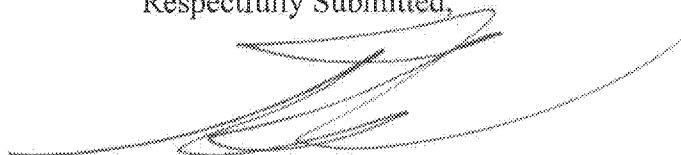
it fails one of the location restrictions. Further, as discussed in Section I, *supra*, the time frame to design, permit, and construct new alternative disposal capacity can vary greatly depending on a number of factors, including the extent of the capacity needing to be replaced. As noted above, the D.C. Circuit did not curtail Section 257.103; nor should EPA, as this remains a crucial provision.<sup>29</sup>

## CONCLUSION

CCIG appreciates the opportunity to provide feedback to EPA regarding the Agency's path forward on the CCR Rule, and urges EPA to consider the information and discussion in these supplemental comments as the Agency determines how to proceed.

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Respectfully Submitted,



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<sup>29</sup> In addition, it remains critical that EPA continue with its proposed rulemaking to clarify that the alternative closure provision allows for disposal and consideration of non-CCR wastestreams as well as CCR wastestreams. Phase One Proposed Rule, 83 Fed. Reg. at 11,595 to 11,597; *see also* May 2018 CCIG Comments at 13-14. As discussed in Section I, *supra*, CCR surface impoundments handle a wide variety of non-CCR wastestreams. And as EPA has already acknowledged, the application of the alternative closure provision for disposal of non-CCR wastestreams is necessary to protect the reliability of the energy supply by ensuring that electric generating units will not be forced to shut down as a result of having to cease use of CCR impoundments. Phase One Proposed Rule, 83 Fed. Reg. at 11,594 to 11,595. The Group therefore urges EPA to finalize the proposed amendments clarifying the scope of Section 257.103.

Finally, the Group respectfully requests clarification regarding the impact of the Phase One Part One Rule on the timeframe to place in the facility operating record the notification under Section 257.103(c) that an owner or operator intends to utilize the alternative closure provision. Specifically, the Group requests that EPA clarify that notification is not required until the date an owner or operate intends to utilize the alternative closure provision, and that in the instance of impoundments that would otherwise be required to cease receipt of waste on October 31, 2020, the notification is likewise due October 31, 2020.